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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,153	09/30/2003	Glen H. Handlogten	ROC920030061US1	6418

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EXAMINER	
BARON, HENRY	

ART UNIT	PAPER NUMBER
2809	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,153	HANDLOGTEN ET AL.	
	Examiner	Art Unit	
	Henry Baron	2809	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *January 25,2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-6,10,14-17 to are rejected under 35 U.S.C. 102(e) as being anticipated by Hassan-Ali et al (U.S. Patent Application Publication 2004/0081167), hereafter Hassan-Ali.

3. Regarding Claim 1, Hassan-Ali teaches a network processor and method of hierarchical scheduling comprised of receiving data from one or more pipes; selecting a winning pipe from the pipes from which to transmit data based upon quality of service parameters corresponding to the winning pipe; selecting a pipe flow from the plurality of pipe flows included in the winning pipe based upon one or more quality of service parameters corresponding to the selected pipe flow; and transmitting data from the selected pipe flow. (8: [0063], [0069]; 9: [0070], [0073] Figure 13).

4. Regarding Claim 2, Hassan-Ali also teaches the further limitation of transmitting data from the selected pipe flow includes transmitting data from the selected pipe flow using a bandwidth corresponding to the winning pipe flow. (5: [0049], 6: [0054] and 8: [0069]).

5. With reference to Claim 3, Hassan-Ali teaches of selecting a winning pipe from the one or more pipes from which to transmit data based upon one or more quality of service parameters corresponding to the winning pipe that includes writing data identifying a pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe and scanning the group of memory addresses to find data identifying a pipe. (9: [0070], [0071], [0072] and Figure 12).

6. In 10: [0077], regarding Claims 4 and 14, Hassan-Ali teaches the method of claim 3 and rewriting data identifying the winning pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the winning pipe. (Figure 15).

7. With reference to Claims 5 and 15, Hassan-Ali teaches selecting a pipe flow from the pipe flows included in the winning pipe, based upon one or more quality of service parameters corresponding to the selected pipe flow, includes: writing data identifying a pipe flow to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe flow (Figure 12, Reference elements 1218-1-6); scanning the group of memory addresses to find data identifying a pipe flow; writing the identified pipe flow in a queue corresponding to the winning pipe based upon one or more quality of service parameters corresponding to the selected pipe flow; and selecting the identified pipe flow from the queue corresponding to the winning pipe. (Figure 12, Reference elements 1218-1 to 6).

8. With reference to Claims 6 and 17, Hassan-Ali also teaches of the methods of Claim 5 further comprising writing data identifying the selected pipe flow to a memory address in a group of memory addresses, based upon one or more quality of service parameters corresponding to the selected pipe flow. (9: [0070] and Figure 14).

9. With reference to Claims 10 and 16, Hassan-Ali teaches of a network processor comprised of one memory adapted to store parameters corresponding to pipes and pipe flows. (Figure 8, reference element 823); and scheduler logic, coupled to the at least one memory, adapted to: receive data from one or more pipes, (Figure 8, reference element 822) each pipe including a plurality of pipe flows (Figure 8, reference element 806); select a winning pipe from the one or more pipes from which to transmit data based upon one or more quality of service parameters corresponding to the winning pipe (Figure 8, reference element 824); select a pipe flow from the plurality of pipe flows included in the winning pipe based upon one or more quality of service parameters corresponding to the selected pipe flow. (Figure 8, reference element 834). (7: [0061]).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 7-9,11-13 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hassan-Ali et al (U.S. Patent Application Publication 2004/0081167), hereafter Hassan-Ali as applied to claims 1-6, 10 above, and further in view of Hassan-Ali et al (U.S. Patent Application Publication 2004/0081157) hereafter Hassan-Ali2.

12. With regards to Claims 7 and 18, Hassan-Ali teaches a network processor and method for hierarchical scheduling comprised of receiving data identifying a pipe flow, the pipe flow included in a pipe, and writing data

regarding the pipe to a first calendar. (9: [0075] Note Hassan-Ali teaches of a first calendar heap data structure and references Hassan-Ali2).

13. However, Hassan-Ali does not teach of writing data regarding the pipe flow to a second calendar; scanning the second calendar for a winning pipe flow; writing the winning pipe flow to a corresponding pipe queue; and transmitting data from the selected pipe flow.

14. Hassan-Ali2 teaches an efficient sorting method for sorting time stamps (TS) from values using a hybrid calendar heap by creating a hierarchical three level search. (5: [0044] and Figure 5). By partitioning the TS data in such a structure, the sorting can be efficiently achieved.

15. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the hierarchical scheduling method of Hassan-Ali to two sort levels; the pipe in a first, higher level calendar, with the pipe flow in the lower level calendar and then use the hybrid calendar heap scheme taught by Hassan-Ali2 to sort for the winning pipe flow, which subsequently is transmitted.

16. Such a modification would improve the efficiency of the scheduler with selection made by a fast, efficient hierarchical tree structure for identifying candidate pipe flows within a pipe, thus improving the data throughput and making the system more economical.

17. Regarding Claims 8-9, 20-21 the Hassan-Ali2 modification teaches of rewriting data regarding the winning pipe flow to the second calendar and the winning pipe to the first calendar. (4: [0040]).

18. Regarding Claim 11 and 12, 19 the hierarchal scheduler logic of the Hassan-Ali2 modification teaching would treat the autonomous flows as a pipe with a single pipe flow enqueue and new attach logic for scheduling at least one of an autonomous flow and a pipe flow to be serviced; and dequeue and reattach logic for selecting at least one of an autonomous flow and a pipe flow to be serviced. (Figure 12, Hassan-Ali2 4: [0039,0040])

19. Regarding Claim 13, the Hassan-Ali2 modification teaches that the scheduler logic is adapted to transmit data from the selected pipe flow using a bandwidth corresponding to the winning pipe flow (Figure 12) and write data identifying a pipe to a memory address in a group of memory addresses based upon one or more quality of service parameters corresponding to the pipe and scanning the group of memory addresses to find data identifying a pipe and a winning pipe. (9: [0070], [0071], [0072] and Figure 12).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henry Baron whose telephone number is (571) 270-1748. The examiner can normally be reached on 7:30 AM to 5:00 PM E.S.T. Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bruce can be reached on (571) 272-2487. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HB

DAVID BRUCE
SUPERVISORY PATENT EXAMINER